

# JOURNAL OF MYCOLOGY.

Vol. II.

MANHATTAN, KANSAS, JUNE, 1886.

No. 6.

## SYNOPSIS OF THE NORTH AMERICAN HYPOCREACEAE, WITH DESCRIPTIONS OF THE SPECIES.

BY J. B. ELLIS AND B. M. EVERHART.

(Continued from page 51.)

24. HYPOCREA RIGENS, Fr. l. c. (*H. lenta*, Schw. Syn. Car., No. 28, not *H. lenta* (Tode).)

This species is said to differ from the preceding in its smaller and more regularly-shaped stroma, with the perithecia confined mostly to the central portion of the disk and by its habitat on bare wood, and not on bark; the stroma is also said to be of a darker color, without any olive or greenish shade. We are inclined to think that these points of distinction are due to imperfect development and are not of specific value, and we have examined many specimens, as the species (as represented in N. A. F. and Rav. F. Am.) is very common, both around Newfield and West Chester. Both *H. Schweinitzii* and *H. rigens* are distinguished from *H. lenta* (Tode) by their smaller sporidia.

25. HYPOCREA SCUTELLÆFORMIS, B. & Rav. (Rav., Fungi Car., IV., No. 31.) On bark of *Acer rubrum*. Carolina. (Ravenel.)

Stromata scutellate, centrally attached, margin free and, in the larger specimens, undulate and sublobate, 1—2 millim. across, convex, nearly smooth, only slightly punctate from the scarcely prominent ostiola, color dull red; cells of the sporidia subglobose, 3—4  $\mu$  in diam. Our knowledge of this species is derived from the specimen cited, in which the asci had disappeared, but the globose cells of the sporidia were abundant.

In Grevillea XII, p. 78, it is stated that *H. scutellæformis*, B. & C. and *H. Ravenelii*, Berk., in Rav., Fungi Car., are two names for the same species, but in our copy of the collection cited, the sporidia are, as above described, entirely different from the brown, fusoid, 3-septate sporidia of *H. Ravenelii*, Berk.

26. *HYPOCREA PATELLA*, C. & P. 29th Rep. N. Y. State Mus., p. 57.

"Fleshy, patellate, discoid, 1—2 lines broad, pale ochraceous; asci cylindrical; spores globose, sixteen, hyaline,  $3\frac{1}{2}$ — $4\frac{1}{2}$   $\mu$  in diam. Resembles, externally, some species of *Helotium*."

27. *HYPOCREA MINIMA*, Sacc. & Ell. Mich. II, p. 570.

Stromata scattered, superficial, pulvinate, discoid, olivaceous, becoming nearly black when dry, hardly 1 millim. in diam., minutely punctulate from the slightly prominent ostiola, texture finely cellular, dark olivaceous; asci cylindrical, without paraphyses,  $75 \times 3\frac{1}{2}$ — $4\frac{1}{2}$   $\mu$ , subsessile, containing 8 didymous, hyaline sporidia composed of two globose-cuboidal cells about  $3\frac{1}{2}$ — $4\frac{1}{2}$   $\mu$  and readily separating. On bark of dead *Magnolia glauca*. Newfield, N. J.

28. *HYPOCREA OLIVACEA*, C. & E. Grev. II, p. 92.

Stromata scattered, consisting, at first, of patches of thin white tomentum  $\frac{1}{2}$ —1 cm. in diam., becoming carnose and subpulvinate and of an olive-yellow shade, at length dark olive, or nearly black, and punctate from the slightly prominent ostiola; asci cylindrical,  $65$ — $75 \times 3\frac{1}{2}$ — $4\frac{1}{2}$   $\mu$ , contracted below into a substipitate base, and containing 8 two-celled, hyaline sporidia, the cells nearly globose, about 3  $\mu$  in diam., and readily separating. On decaying pine wood. Newfield, N. J. What appears to be the same was found on decaying bark of *Sassafras* lying on the ground.

29. *HYPOCREA STEREOBUM*, Schw. Syn. N. Am., 1183. On *Stereum fasciatum*. Bethlehem, Pa. (Schw.) On *Polyporus Curtisii*. South Carolina. (Ravenel.)

"Undulate-confluent, applanate, margin sublobate, surface plicate, subpulvinate, flesh-color, becoming brown; when young, covered with a white tomentum and then more distinctly pulvinate; sometimes solitary, but generally confluent in elongated strips in the folds of the matrix; substance quite soft, but not gelatinous; surface granular from the prominent perithecia, which are distinctly ostiolate and *not* immersed in the whitish subadjacent stroma; seminal dust (sporidia) copious. Often confluent for an inch in length, the separate, cushion-like stromata 3—4 lin. broad; margin partially free."

We have seen no specimens, and copy the above description from Schw. Cooke, in Grev. XII, p. 78, says the cells of the (didymous) sporidia are subglobose and hyaline.

30. *HYPOCREA RICHARDSONI*, Berk. & Mont. On bark of dead poplar.

Discoid-tubercular, scattered, or gregarious, dull purplish-red, centrally attached,  $\frac{1}{2}$  cm. across, deeply wrinkled, margin sublobate and free, whitish within. In Grevillea IV, p. 14, Berkeley states that the asci are clavate and the sporidia elliptic, and that it was first gathered in one of the Arctic expeditions by Sir J. Richardson. All the specimens we have seen are entirely sterile, like those in N. A. F., 1321. *Tubercularia pezizoidea*, Schw., is said to be the same. Its range appears to be northward from Maine to Wisconsin and west to Colorado and Utah.



31. *HYPOCREA SOLENOSTOMA*, B. & Rav. Grev. IV, p. 14. On decaying *Pachyma cocos*, Schw. Carolina.

"Subglobose, pale rufous, rather irregular; ostiola cylindrical, elongated; sporidia globose,  $4\ \mu$  in diam."

32. *HYPOCREA LATI-ZONATA*, Pk. Parasitic on *Cyathus striatus*, Hoff.

Subiculum dirty white, forming a broad ( $\frac{1}{2}$ — $\frac{3}{4}$  cm.) band around the outside of the cups of the *Cyathus*, thickly punctated with the dark-brown, slightly prominent ostiola. Asci cylindrical,  $75$ — $80 \times 3\frac{1}{2}$ — $4\ \mu$ , containing eight didymous sporidia, the cells separable, subglobose, hyaline and  $3$ — $3\frac{1}{2}\ \mu$  in diam. A very curious species sent from Ohio, under the above name, by Prof. A. P. Morgan.

33. *HYPOCREA VIRIDIRUFA*, B. & Rav. Grev. IV, p. 14. On dead alders. South Carolina. Ravenel.

"Subglobose, congested, or confluent, greenish-rufous; ostiola impressed; sporidia oblong, with two nuclei."

In Grevillea XI, p. 129, this is referred to *Hypoxylon*, but if the specimen of *H. rufo-viridis*, B. & Rav., in Rav., Car. fasc. V., No. 53, is the same as *H. viridi-rufa*, B. & Rav., in Grev., l. c., the stroma is not carbonaceous (as it should be in *Hypoxylon*), but carnose. The specimen referred to is, in our copy, without fruit, — apparently immature.

#### 11. *Sporidia colored.*

34. *HYPOCREA GELATINOSA* (Tode). On rotten wood both of deciduous and coniferous trees.

Stromata gregarious, superficial, pulvinate, or subhemispheric, carnose, soft, punctate from the slightly prominent ostiola,  $1\frac{1}{2}$ — $3$  millim. in diam. at first with a thin, light-colored tomentum at the base, pale, becoming yellowish or at length greenish, whitish within, subrugose, and partially collapsing when dry; asci cylindrical, contracted into a short pedicel at the base,  $80$ — $90 \times 3\frac{1}{2}$ — $4\frac{1}{2}\ \mu$ , 8-spored; sporidia composed of two unequal cells, the upper nearly spherical ( $4\ \mu$  in diam.), the lower ellipsoid, or ovoid,  $3\ \mu$ , yellowish. Probably common throughout. *Var. viridis* (Tode) is reported by Prof. Peck on maple chips, New York state.

35. *HYPOCREA CHLOROSPORA*, B. & C. Grev. IV, p. 14. On decaying bark. Newfield, N. J., also reported from New York.

Stromata small, greenish, nearly round, sessile, convex ( $1$ — $1\frac{1}{2}\ \mu$ ), roughened by the rather prominent ostiola. Asci narrow cylindrical, about  $75 \times 4\ \mu$ , with eight two-celled sporidia, each cell subcubical or nearly globose, of an olivaceous color and  $3$ — $3\frac{1}{2}\ \mu$  in diam.

36. *HYPOCREA CHROMOSPERMA*, C. & P. 29th Rep. N. Y. State Mus., p. 57. On decaying wood. Buffalo and Greenbush, N. Y.

"Fleshy, soft, convex, orbicular, 1—2 lines broad, flattened and patellate when dry, whitish or watery tan-color; ostiola slightly prominent; asci cylindrical; spores quadrate-globose, brownish when mature,  $4$ — $5\ \mu$ ."

37. *HYPOCREA CUBISPORA*, Ell. & Hol. Jour. Mycol., I, p. 4. On a decaying log. Iowa.

Stroma tuberculiform-obconic, subpubescent below, about 1 cm. broad by  $\frac{1}{2}$  cm. high, lemon yellow within and without, surface minutely punctate with the black ostiolaria; perithecia peripheral, globose, about 250  $\mu$  in diam., contents black; asci cylindrical, containing eight cubical or oblong-truncate, dark olive or brownish-black, 2-nucleate, 4-7 x 3-4  $\mu$  sporidia, some of which are obscurely uniseptate.

B. *Stroma effused.*

I. *Sporidia hyaline.*

38. *HYPOCREA CITRINA* (Pers.)

Thin, effused, carnose, lemon color, punctate from the dark, rather prominent ostiolaria, forming a thin crust overspreading decaying wood and bark, or, sometimes, decaying leaves and mosses for several inches in extent; asci cylindrical, 90-110 x 5-6  $\mu$ , cells of the didymous sporidia unequal, subglobose, 4-6  $\mu$  in diam. This is one of the commonest species. *Var. fungicola*, Karst. Myc. Fenn., II, p. 204, is reported, by Prof. A. P. Morgan, from Ohio.

39. *HYPOCREA ARMENIACA*, B. & C. Grev. IV, p. 15.

"Forming a thin, apricot-colored stratum which, when barren, looks like *Corticium ochroleucum*, at length fertile; perithecia superficial, scattered, of a deeper tint." Specimens found at Newfield, on pine wood and bark, agree with the description quoted, except that the perithecia can hardly be called superficial, and the subglobose cells of the didymous hyaline spores are rather less than 3  $\mu$  in diam., whereas, according to Cooke, in Grev. XII, p. 78, they are 4  $\mu$  in diam.

40. *HYPOCREA OCHROLEUCA*, B. & Rav. Grev. l. c., from the brief description, can not well be distinguished from the preceding species. The cells of the sporidia are said by Cooke, in Grev., l. c., to be 6  $\mu$  in diam.

41. *HYPOCREA LACTEA*, Fr. Summa, V. S., 383.

"Carnose, broadly effused, bare, milk white, ostiolaria punctiform; asci cylindrical, 56 x 3  $\mu$ , subequal cells of the didymous, hyaline sporidia, globose, 3  $\mu$  in diam." Sacc. Syll. II, p. 529, the species is credited to North America. We have seen no specimens. The habitat is given as on rotten wood, on *Polyporus medulla-panis* and on the ground.

42. *HYPOCREA SULFUREA*, Schw. Syn., N. Am., 1221.

"Rather thin, subcarnose, at length horn-like in texture (when dried), the thin, partially free margin variously lobed, sulphur-color, white within; perithecia crowded, globose-depressed, immersed, dirty-yellow; ostiolaria concolorous, papillate, situated in little pit-like depressions of the otherwise smooth surface. On bark. Rare. Separable when fresh, subrotund,  $1\frac{1}{2}$  inches across." In Grev., l. c., the globose cells of the hyaline sporidia are said to be 5  $\mu$  in diam.



43. *HYPOCREA PALLIDA*, E. & E. n. s. Parasitic on decaying *Polyporus cæsius*. Newfield, N. J.

Perithecia pale horn-color, subglobose ( $250\ \mu$ ), immersed in a rather scanty, loose, white, tomentose mycelium (stroma), which overspreads the surface of the pores and covers the sides of the perithecia themselves, leaving their apices and papilliform ostiola bare; asci cylindrical,  $65-75 \times 4-4\frac{1}{2}\ \mu$ , containing eight oblong-elliptical, 2-celled hyaline sporidia, the cells subcubical or nearly globose,  $3\ \mu$  in diam. and readily separating. The upper part of the perithecia collapses when dry, and, in old or weather-beaten specimens, the tomentose stroma disappears, leaving the perithecia sessile on the mouths of the pores. We have seen no specimens of *H. polyporoidea*, B. & C., but our species will be distinct from that, in the absence of any crust-like stroma and in its smaller sporidia. It was first found in October, 1880, and again in October, 1886.

44. *HYPOCREA CORTICICOLA*, E. & E. Journ. Mycol., I, p. 140. On bark of dead limbs of *Magnolia glauca*. Newfield, N. J., August, 1885.

Stroma thin, milk-white with the margin slightly cottony, forming a continuous layer, extending along the limb for six inches or more, finally becoming dirty-white, and cracking into small areas, as in *Corticium polygonium*; perithecia globose, pale,  $75-100\ \mu$  in diam., buried in the stroma and visible under the lens as horn-colored specks; asci clavate-cylindrical,  $20-22 \times 3\frac{1}{2}\ \mu$ , sessile, without paraphyses; sporidia biseriate, eight in an ascus, each consisting of two globose, hyaline cells, easily separating and  $1-1\frac{1}{2}\ \mu$  (mostly  $1\ \mu$  or a little over). This is closely allied to *H. hypomycella*, Sacc., Mich. I, p. 302, Syll. II, p. 529, but differs in its asci and sporidia being only about half as large as in that species.

45. *HYPOCREA POLYPOROIDEA*, B. & C. Grev. IV, p. 15. On beech. Alabama, Peters, 6110.

"Peritheciis tomentosis, liberis, in crustam pallidam insidentibus. Fawn-colored; perithecia free, tomentose with a naked ostiolum, seated on a pale crust, here and there elevated, which is thin towards the margin. A very curious species." Cooke, in Grev., l. c., gives the hyaline, subglobose cells of the sporidia as  $5\ \mu$  in diam.

C. *Stroma discoid.* *Sporidia continuous, hyaline.*

46. *HYPOCREA CONSIMILIS*, Ell. Grev. XII, p. 79. N. A. F., 158.

Stroma orbicular or elliptical, convex, 2-4 millim. across, brick-red, wrinkled, carnose; asci clavate-cylindrical,  $60-70 \times 4\ \mu$ ; sporidia 1-seriate, hyaline,  $10-12 \times 3\frac{1}{2}-4\ \mu$ . On dead *Azalea viscosa*. Newfield, N. J.

D. *Stroma pulvinate or effused.* *Sporidia fusoid, hyaline, 1-septate.*

47. *HYPOCREA APICULATA*, C. & P. 29th Rep. N. Y. State Mus., p. 57.

"Fleshy, soft, growing in irregular patches, smooth, ochraceous, inclining to orange, the extreme margin barren; asci cylindrical; spores fusiform with an apiculus at each end, 1-septate, colorless,  $27-37 \times 7\frac{1}{2}-10\ \mu$ . On the ground and on rocks. Catskill mountains, New York."

48. *HYPOCREA PAPYRACEA*, Ell. & Hol. n. s. Under side of an old log. Decorah, Iowa (Holway).

Stroma membranaceous, thin, separable, 2–3 cm. across, white with a yellow, substerile margin; perithecia superficial, fawn-colored, small ( $150\ \mu$ ), thickly scattered on the stroma; asci slender, about  $75 \times 3\ \mu$ , (spore-bearing part about  $60\ \mu$ ), without paraphyses; sporidia fusoid, hyaline, 1-septate,  $8\text{--}10 \times 2\frac{1}{2}\text{--}3\ \mu$ , readily separating at the septum. The yellow margin may be only accidental. This differs from *H. corticioides*, B. & Br., in its larger sporidia and different color.

49. *HYPOCREA DIGITATA*, Ell. & Holway. Journ. Mycol. I, p. 42. On a dead limb. White mountains, N. H. Miss Minns.

Stroma carnose, yellowish, digitate, radiating from a central point and dividing into numerous (2 millim. in diam.) semicylindrical, finger-like lobes, closely oppressed to and surrounding the matrix and extending longitudinally for about 5 cm. The rounded ends and the sides of the lobes are sterile, the perithecia being found only on the upper or outer surface; perithecia immersed, their position being indicated only by the prominent but minute black ostiola; asci cylindrical,  $80\text{--}90\ \mu$  long; sporidia 1-seriate, ends mostly overlapping, hyaline, 1-septate, oblong or narrow-elliptical, often subinequilateral,  $20\text{--}26 \times 6\text{--}8\ \mu$ . The stroma is like the fingers of a hand clasping the limb. The sporidia are those of a *Hypomyces*, to which, perhaps, this should be referred, though it is not parasitic on any other fungus, unless the finger-like lobes are an abortive growth of some hymenomycete, which is not impossible.

50. *HYPOCREA CITRINELLA*, Ell. Bull. Torr. Bot. Club, VI, p. 108.

Stromata scattered or subconfluent, minute (1–2 millim.), thin-pulvinate, bright lemon-color, atro-punctate from the minute ostiola; asci slender,  $100\text{--}120 \times 5\text{--}6\ \mu$ ; sporidia fusoid, hyaline, 1-septate, 1-seriate,  $12\text{--}14 \times 3\text{--}3\frac{1}{2}\ \mu$ . On dead twigs and limbs of *Vaccinium corymbosum* not yet fallen and not much decayed. In the original description, the true character of the sporidia was overlooked, the specimens first found being rather old and the cells of the sporidia separated.

E. *Stroma pulvinate. Sporidia fusoid, 3-septate, brown or yellowish.*

51. *HYPOCREA RAVENELII*, B. Grev. IV, p. 14. Rav. Car. V, No. 51.

"Pulvinata, rugosa, rubra; ascis clavatis; sporidiis biseriatis, fusiformibus, demum triseptatis, .0015–.0016 inch long. On *Ostrya Virginica*, *Acer rubrum*. Car. Inf., 1575." This description, copied from Grevillea, applies well to the specimen in Rav. Car., except the color which, in Ravenel's specimen, is cinereous or argillaceous. The young specimens, however, are a dull brick red, but never bright red. There is some confusion as regards this species and *H. scutellaeformis*, B. & Rav. As already noted, the two are said by Cooke to be the same (Grev. XII., 78), but the specimens of the two species in Rav. Car. are quite distinct. *H. Ravenelii*, Berk., as represented in Rav. Car. V, 51, is as follows: Stroma erumpent, tuberculiform-convex, clay color, becoming darker,



roughened by the blackish, rather large and prominent ostiola, 1—2 millim. in diam; asci 90—110 x 12  $\mu$ ; sporidia fusiform, slightly curved, 3-septate, brown, 38—45 x 3—4½  $\mu$ . *Diatrype lateritia*, Ell., Bull. Torr. Bot. Club., IX, p. 19, and *Hypoxyylon myriangioides*, B. & C.(?) N. A. F., 474, are the same as this. The same thing is also to be found in Roumeguere's *Fungi Gallici*, No. 1174, on bark of *Corylus*, collected at Lyons, France. The young stroma, as already noted, is of a pale brick color, and is sometimes nearly plane above and at length more or less rugose and pitted from the collapsing of the upper part of the perithecia. Whether the *Hypoxyylon myriangioides*, B. & C., is really the same as this, we are still unable to say, but the description of that species in Grevillea renders such a supposition not improbable.

52. HYPOCREA CHLORINA, Cke. Grev. VII, p. 49. Rav. F. Am., 342.

Flattened, discoid, elliptical or elongated, 1—2 millim. in diam., clay colored (bright yellow within); perithecia immersed, brown, ostiola blackish, punctiform; asci clavate, spore-bearing part about 75 x 15  $\mu$ , surrounded with abundant filiform paraphyses; sporidia biseriate, narrow-elliptical, endochrome three times divided, yellowish (becoming brown ?), 20—25 x 8—9  $\mu$ . On bark of hickory. Darien, Ga. The stroma is of about the same color as the bark, flatter than in the preceding species, but of about the same color.

F. *Stroma pulvinate or effused. Sporidia filiform.*

HYPOCRELLA, Sacc. Syll. II, p. 579.

a. Perithecia subconfluent.

53. HYPOCREA PHYLLOGENA, Mont. Syll., 711.

"Stroma pulvinate, hemispheric, base constricted and orange-colored; perithecia peripheric, erect, ovate and, with the punctiform ostiola, bright purple, sunk in the upper part of the stroma, which is of the same color; asci linear with the apex cap-shaped or obtusely conic; sporidia linear, curved, finally breaking up into segments 16—18 x 2  $\mu$ . On living leaves of *Cantarea Cayenne*." We have included this species, which will not improbably yet be found in Southern Florida or Mexico.

54. HYPOCREA HYPOXYLON, Pk. 27th Rep. N. Y. State Mus., p. 108. On stems of living grasses. Maine and Florida (Scribner), New York (Peck.), New Jersey (Ellis), Massachusetts (Farlow).

"Convex or pulvinate, subconfluent, blackish externally, white within; seated on a whitish or gray subiculum; ostiola prominent; asci very long and linear; spores elongated, filiform, multinucleate, colorless." According to Farlow, in Bull. Bussey Inst., this is not distinct from *Dothidea vorax*, B. & C., of which *D. atramentaria*, B. & C. (N. A. F., 683), is only a variety, and we now suspect that *Ephelis borealis*, E. & E., Journ. Mycol. I, p. 86, is only the stylosporous stage of the same thing. There is some uncertainty as to whether Peck or Berkeley has priority of publication, also as to the true place of species in the systematic arrange-

ment. In the Newfield specimens, which were on *Panicum (capillare ?)*, the fungus forms an even layer entirely surrounding the culm, just below the internodes, with just the same habit as *Epichloe typhina* and without any tubercular projections, as in the specimens from all the other localities mentioned.

55. *HYPOCREA ATRAMENTOSA*, B. & C. Journ. Linn. Soc. X, p. 377.

"Forming a thin black stratum on the under side of the leaves of grasses in Cuba and of *Andropogon* in Alabama. Perithecia globose and, with the ostiola, immersed; sporidia filiform." Does this differ from *Dothidea atramentaria*, B. & C.?

b. Perithecia separate.

56. *HYPOCREA TUBERIFORMIS*, B. & Rav. Grev. IV, p. 13. Rav., F. Am., 733. "Magna, tuberiformis, mycelio radiato, albo affixa." On stems of *Arundanaria*. Car. Inf., Ravenel, No. 1220.

"Forming either a large mass  $\frac{2}{3}$  of an inch across or two or three distinct, subglobose individuals, fixed to the stem by a radiating, white, rugose mycelium; at first yellowish, then black."

Apparently, the original specimens were imperfect and, as those in Rav. F. Am. are either young or sterile, we can only say that the perithecia are subcylindrical and stand on the stroma like the young horns of *Podisoma macropus*, about 1 millim. high.

The following species are imperfect or obscure :

57. *HYPOCREA PARASITANS*, B. & C. Grev. IV, p. 15.

"Minuta, subelliptica, pruinosa, pallida; sporis majoribus, subglobosis. On *Hydnium erinaceum*, Car. Inf., No. 6190. Minute, pallid, subelliptic, sometimes winding around the teeth; spores globose, rather large."

58. *HYPOCREA SUBVIRIDIS*, B. & C. Grev. 1. c.

"Effusa pallide viridis tomentosa in mycelio niveo insidens. On dead grass leaves. Car. Inf., 4955. Effused; perithecia pale dull green, tomentose, crowded, seated on a white mycelium. A curious species."

59. *HYPOCREA STERILIOR*, Schw. Syn., N. Am., 1188.

"Substance at first rather soft, broadly effused, applanate, surface longitudinally striate, flesh-color, becoming light yellow. When dry, the margin is very delicate, cottony, with interwoven fibres, with which the whole appears smoothly (lightly ?) covered; texture carnose-horny; perithecia few, scattered; about an inch in circumference and two lines thick."

60. *HYPOCREA SUBLOBATA*, Schw. Syn., N. Am., 1225.

"Scutellate, small, slightly attached, margin obtuse, lobate-repand, black, then subolivaceous; surface flat, rugulose; perithecia subperipheric, in a single layer, becoming yellow, immersed in the light yellow stroma; ostiola impressed; not exceeding 2—3 lines in diam. On bark of *Platanus*. Bethlehem, Pa."



61. *HYPOCREA MOLLIUSCULA*, Schw. Fr. Elench. II, p. 66.

"Minute (1 line across), round, plano-convex; perithecia small, entirely hidden, connate, surface of the stroma roughened by the ostiola, pruinose, sooty-black. On rotten wood. Pennsylvania."

GEN. V. *HYPOMYCES*, FRIES.

Mostly parasitic on other fungi. Subiculum (stroma) cottony-velutinous.

\* *Sporidia continuous*.62. *HYPOMYCES VAN BRUNTIANUS*, Ger. Bull. Torr. Bot. Club, IV, p. 64.

Perithecia globose, densely crowded, pallid, hygrophanous, immersed, with a short, thick, exserted, obtuse mouth; subiculum white; sporidia oblong, hyaline, shortly apiculate at the broad end, obtusish at the other,  $14-16 \times 3\frac{1}{2}-4\frac{1}{2} \mu$ ; asci cylindrical. On the pileus, stipe and gills of an unknown *Agaric*. Poughkeepsie, N. Y. (Gerard), Iowa, (Holway).

63. *HYPOMYCES VIRIDIS* (A. & S.). Consp., p. 8. Sacc., Syll. II, p. 472. On *Agaricus alutaceus*, Carolina (Ravenel), Pennsylvania (Michener), New England (Sprague).

Stroma broadly effused, with a dirty, yellowish-green tomentum and sterile margin; perithecia closely packed, ovoid or spheroid, pale, with their conical apices projecting and becoming dark brown or black. Asci cylindrical,  $170-180 \times 7-8 \mu$ , containing eight elongated, straight or curved, mucronate sporidia,  $28-30 \times 5 \mu$ , yellowish-hyaline, continuous or with the endochrome sometimes 2-parted.

64. *HYPOMYCES POLYPORINUS*, Pk. 26th Rep. N. Y. State Museum, p. 84. On *Polyporus versicolor*, N. Y. (Peck).

Perithecia minute, ovate or subconical, seated on a pallid subiculum, smooth, yellowish or pale amber; asci narrow, linear; sporidia fusiform, acuminate at each end, nucleate,  $15-18 \mu$  long. The outward appearance is almost exactly the same as that of *Hypocrea pallida*, E. & E.

65. *HYPOMYCES APIOSPORUS*, Cke. Grev. XII, p. 80. On *Clavaria pistillaris* (?) N. Y. (Gerard).

Effused, pale, thin; perithecia semi-immersed, slightly papillate (honey color when dry), ostiola indistinct; asci cylindrical, eight-spored; sporidia lanceolate, apiculate above, rounded below, minutely roughened, continuous, yellowish (except the apiculus),  $18 \times 6\frac{1}{2} \mu$ .

66. *HYPOMYCES BANNINGII*, Pk.

"Subiculum white, then sordid; perithecia crowded, ovate with a papilliform ostium, pale amber or honey color; asci slender, cylindrical; spores uniseriate, oblong-fusiform, white in the mass,  $30-37 \times 4-5 \mu$ . Decaying fungi, apparently some *Lactarius*. Baltimore, Md. Miss Banning. The spores, in our specimens, are simple, but they may possibly become uniseptate when old." Copied from Bot. Gaz., IV, p. 139.

(To be continued.)

## NOTES ON FLORIDA FUNGI.--No. 5.

BY W. W. CALKINS, CHICAGO, ILLINOIS.

In previous papers, I mentioned some of the most prominent species of fungi,—or such as would naturally claim the attention of a tyro in this study. In this, I will consider a few forms that are not found without considerable trouble, much hard work, and frequently an abundance of bruises and scratches, to say nothing of the danger incurred from arousing a snake from its lair. I have often gone over a piece of woods and secured, as I supposed, everything of value, but repeated trials on the same ground have convinced me of my error and surprised me by the results obtained. In Florida there are some species found only in certain favorable localities and in certain woods. *Polyporus Salleanus*, B., a most beautiful species, and not common, occurs on dead hickory limbs lying on the ground and more sparingly on *Magnolia glauca*. *Lenzites corrugata*, is found on old limbs in moist places. *Hydnum laticola*, B. & C., is very rare here, but fine, and can only be found by searching on low grounds very closely, and then weeks may pass without finding it. *Hydnum fragillissimum*, B. & C., is equally rare and only a few specimens have rewarded my efforts. Both of these species affect the under side of rotten limbs in dark forest shades. *Kneiffia Setigera*, Fr., in the same situations, is also not common.

## PHOSPHORESCENT FUNGI.

Some time last fall (1885), Prof. Thos. G. Gentry, of Philadelphia, Pa., called my attention to the fact that *Panus stypticus*, Fr., is phosphorescent. Prof. G. had collected some specimens of this species and laid them with other fungi on a shelf to dry. On examining the specimens the same evening, it was found that the gills of the *Panus* were distinctly phosphorescent, a fact which I have been able to verify by my own observation of specimens, soon after collected at Newfield. By careful examination, the luminosity was found to proceed from the gills and not from the stipe, nor from the upper surface of the pileus, nor, finally, as was at first suspected, from any fragment of rotten wood attached to the specimen. This phosphorescence was not observed in all specimens brought in for examination, and seemed to depend on some peculiar condition of the air, having been noticed only in specimens gathered in damp weather or just before a storm.

In his "Introduction to Cryptogamic Botany," p. 265, Berkeley observes that "this luminosity has been noted in various parts of the world; and where the species has been fully developed it has been generally some species of *Agaricus* that has yielded the phenomena. *Agaricus*



*olearius*, of the south of Europe, is one of the best known, but other species have been observed, as *Ag. Gardneri*, Berk., in Brazil; *Ag. lam-pas* and some others in Australia; in Amboyna, by Rumpf, &c. Mr. Babbington has observed imperfect mycelia extremely luminous near Cambridge; and Dr. Hooker speaks of the phenomena as common in Sikkim, though he was never able to detect the species to which it was due. Beautiful, however, as the effect may be in these instances, it is far excelled by the phosphorescent appearance presented by *Rhizomorphae* in mines, the splendor of which is described by Humboldt in the most glowing colors."

From the remarks above quoted, it appears that the number of phosphorescent fungi specifically known is not large. It is not probable that *Panus stypticus* is the only North American species possessing this peculiarity, though, so far as I know, it is the only one thus far noted.

J. B. E.

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## NEW LITERATURE.

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BY W. A. KELLERMAN.

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"A FUNGIOUS DISEASE OF EUCHARIS." W. B. Grove, B. A. *The Gardener's Chronicle*, March 27th, 1886. This article, illustrated by five wood cuts, deals with the ravages and the characters of *Saccharomyces glutinis*, Cohn, in a very clear, interesting and instructive manner.

"NUOVO SPECIE DI POLYPORUS SCOPERTA E DESCRITTA." da F. Panizzi. *Nuovo Giornale Botanico Italiano*, Aprile, 1886."

"SULLO SVILUPPO DI DUE NUOVI HYPOCREACEI E SULLE SPORE-BULBILLI DEGLE ASCOMICETI." *Ricerche del Dott. O. Mattirola*. l. c.

"REBENHORST'S KRYPTOGAMEN-FLORA—PILZE VON DR. G. WINTER. 22 LIEFERUNG, SPHÆRIACEÆ."

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## ERRATA.

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Page 28, Vol. II, eighth line from top, for "carrose" read "cerose."

Page 51, Vol. II, fifth line from bottom, for "nearly" read "merely."

The article on "UNCINULA POLYCHÆTA," in No. 5, was intended by the author to be inserted in place of a similar one in No. 4, but, by oversight, both were printed.

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